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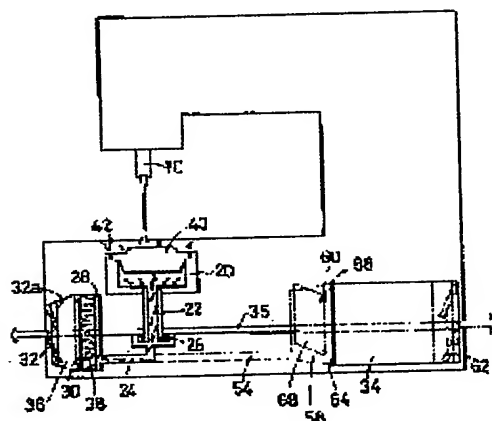
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## (54) SEWING MACHINE

(57)Abstract:

**PURPOSE:** To provide the sewing machine equipped with a mechanism for preventing an inner bobbin from dancing even without using any magnet for preventing the inner bobbin from idly moving and additionally to provide the sewing machine for preventing any sewing defect such as stitch skip from occurring even without cleaning the inside of the bobbin and the nearby part concerning the sewing machine with the horizontally fully rotary bobbin.

**CONSTITUTION:** An inner bobbin 40 is sucked by passing a sucking air current, which is generated by revolving a fan 32, through the inside of a cylindrical part 36, filter 30, dust collecting part 28, extended pipe 24 and hollow rotary shaft 22. This sucking force prevents an inner bobbin 40 from idly moving. At the same time, the sucking air current sucks fabric dust or lint inside and around an outer bobbin 29, and dust 42 is collected into the dust collecting part 28 by the filter 30.



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**(書誌+要約+請求の範囲)**

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**【審査請求】未請求****【請求項の数】3****【出願形態】OL****【全頁数】5****(21)【出願番号】特願平5-292922****(22)【出願日】平成5年(1993)11月24日****(71)【出願人】****【識別番号】000005267****【氏名又は名称】ブラザー工業株式会社****【住所又は居所】愛知県名古屋市瑞穂区苗代町15番1号****(72)【発明者】****【氏名】吉村 千里****【住所又は居所】名古屋市瑞穂区苗代町15番1号ブラザー工業株式会社内****(57)【要約】**

**【目的】** 水平全回転釜のミシンにおいて、内釜の遊動防止の為に磁石を用いなくとも内釜が踊らない機構を有するミシンを提供することを目的とする。加えて、釜内部及びその付近の掃除をしなくても、目飛び等の縫製不良を起こさないミシンを提供することを目的とする。

**【構成】** ファン32が回転することによって生じる吸込み気流が、筒部36、フィルター30、集塵部28、延長管24、中空の回転軸22の中を通して内釜40を吸引する。この吸引力が、内釜40の遊動を防止する。同時に、吸込み気流は、外釜20内部及びその周辺の布埃や糸屑を吸引し、フィルター30によって集塵部28内に埃42が集められる。

**【特許請求の範囲】**

**【請求項1】** 内釜とその内釜の周りを回転する外釜とを有する水平全回転釜を備えたミシンにおいて、前記内釜を前記外釜に向かって吸引する吸引手段を備えたことを特徴とするミシン。

**【請求項2】** 前記吸引手段の駆動源が、前記外釜または針棒を駆動するためのメインモータによって構成されていることを特徴とする請求項1記載のミシン。

**【請求項3】** 釜または針棒を駆動するためのメインモータを備えたミシンにおいて、前記釜からミシン本体外部まで連結するように設けられ、釜近傍にて発生する埃をミシン本体外部まで放出するための放出管と、その放出管の途中に設けられ、前記メインモータによって回転駆動されるファンとを備えたことを特徴とするミシン。

## 詳細な説明

### 【発明の詳細な説明】

#### 【0001】

【産業上の利用分野】本発明は、マシンに関するものである。

#### 【0002】

【従来の技術】従来、針棒の上下運動方向である垂直軸を中心として回転する水平全回転釜の場合、外釜のレース面上を内釜が摺動する際、内釜自身の重さだけでは軽すぎて、内釜が外釜のレース面上を遊動することを防止することができなかった為、磁石を用いて、内釜底面と外釜底面との間に磁気回路を形成し、磁力によって内釜の誘導を防止していた。よって、外釜及び内釜作製の際には磁石が必要不可欠であり、内釜の底面に磁石を埋設した場合には、外釜底面は磁石により吸引される金属材料から成るか、または前記金属材料により被覆していた。また、外釜の底面に磁石を埋設した場合には、内釜底面は磁石により吸引される金属材料から成るか、または内釜底面は前記金属材料により被覆していた。

【0003】また、マシンで縫製を行う時、水平全回転釜が装着されているマシンの場合、特に外釜の内部及び釜付近に、また、垂直半回転釜が装着されているマシンの場合、大釜の内部及び釜付近に、布埃が溜まり作業者が内釜または中釜を外して掃除をしていた。

#### 【0004】

【発明が解決しようとする課題】しかしながら、水平全回転釜の場合、内釜は本体が樹脂製であるものが大半を示している為、その構成は、底面部に金属材料がインサートされた射出成形品であるか、または内釜本体を射出成形した後、接着等の手段を用いて内釜底面に磁石を埋設させていたものが一般的であり、前記磁気回路が形成される為には、磁石により吸引される金属材料の埋設工程、及び磁石の埋設工程を除くことは出来なかった。

【0005】外釜に関しては、外釜本体の材質が金属材料である場合には、前者の内釜を装着する場合、外釜の底面に磁石を埋設させる工程を除くことは出来なかった。

【0006】また、外釜に関して、本出願人の出願に係わる特願平5-178876号の明細書及び図面に記載されたように、摺動時の騒音の防止、製造コストの低減の観点から、剣先部と中心軸を除いた部分が樹脂成形されている場合には、内釜の底面に磁石を埋設させたものを、樹脂製の外釜に装着しても、磁力は金属製の中心軸との間にしか働かず不十分な為、外釜に、磁石により吸引される金属材料板を埋設しなければならず、コストアップにつながっていた。

【0007】また、布埃の点については、縫い針が布を貫通して縫い目を形成する際、布から生じる埃は予想以上に多く、埃が内釜と外釜との摺動面となるレース面や、糸の通り道に埃が溜まると、釜の回転がスムーズに行かなくなり、目飛び等の縫製不良を起こす場合があった。

【0008】故に、水平全回転釜の場合、針板のネジを外し、内釜を取り除いて外釜内部、及び外釜付近の掃除をしなければならず、外釜または内釜が樹脂製の場合には、掃除前後、外釜のレース面に内釜のレース面を乗せるとき外釜の外部と干渉した場合や、掃除後、誤った位置に内釜を乗せて組み付けようとした場合、レース面が損傷をうける恐れがあった。

【0009】また、針板を外した後、取付の際に、送り歯との微妙な位置合わせを行わねばならず煩わしかった。

【0010】垂直半回転釜のついても、埃が溜まると釜の回転がスムーズに行かなくなり目飛び等の縫製不良を起こす場合があった為、一般的には、補助テーブルを取り除いて、釜カバーを開き、内リングと中釜を取り除いて、大釜内部、及び大釜付近の掃除を行わなければならず煩わしかった。

【0011】本発明は、上述した問題点を解決する為になされたものであり、水平全回転釜のマシンにおいて、内釜及び外釜の作製の際、内釜の遊動防止の為に、不可欠であった磁石及び、磁石の埋設工程及び、磁石により吸引される金属材料板の埋設工程を行わずとも、目飛び等の縫製不良を起こすことが無く、美しい縫い目の作品を得ることができるマシンを提供することを目的とする。

【0012】また、釜機構を有するマシンにおいて、外釜の内部及び、釜部の掃除といった煩わしいメンテナンスが大幅に削減でき、且つ、目飛び等の縫製不良を起こさない、使用者が使いやすいマシンを提供することを目的とする。

#### 【0013】

【課題を解決するための手段】この目的を達成するために本発明の請求項1記載の水平全回転釜を有するマシンは、内釜を外釜に向かって吸引する吸引手段を備えている。

【0014】また、請求項2記載のミシンは、吸引手段の駆動源が外釜または針棒を駆動するためのメインモータによって構成されている。

【0015】更に、請求項3記載のミシンは、釜からミシン本体外部まで連結するように設けられ、釜近傍にて発生する埃をミシン本体外部まで放出するための放出管と、その放出管の途中に設けられ、メインモータによって回転駆動されるファンとを備えている。

【0016】

【作用】上記のように構成された本発明の請求項1に係わる水平全回転釜を有するミシンにおいては、吸引手段が内釜を外釜に向かって吸引する。

【0017】また、請求項2に係わるミシンにおいては、メインモータによって吸引手段が駆動する。

【0018】更に、請求項3に係わるミシンにおいては、放出管が釜近傍にて発生する埃をミシン本体外部まで放出するために釜からミシン本体外部まで連結するように設けられ、ファンが放出管の途中に設けられ、メインモータによって回転駆動される。

【0019】

【実施例】以下、本発明を具体化した一実施例を図面を参照して説明する。

【0020】ミシンの本体機枠には水平な作業台が設けられており、その作業台の上面には平坦な針板が公知のように位置されている。その作業台の右端部からはアームが立設している。そのアームの内部には、メインモータに連結され駆動する駆動軸が、回転可能に公知のように保持されている。アーム部の左端で、作業台と対面する部分には、前期駆動軸の回転に同期して上下運動する針棒10が設けられており、この針棒10には縫い目を構成する上糸を保持する縫い針が公知のように取り付けられている。

【0021】針板の略中央部には針穴が設けられており、針棒10の上下に伴って縫い針が針板を通過できるように構成されている。水平全回転釜の場合、針板の下方には、上下運動する縫い針と協働して加工布に縫い目を形成する釜機構が設けられている。

【0022】釜機構は、下糸が巻かれたボビンを収納する内釜40と、内釜40を摺動自在に保持する外釜20とにより構成され、この外釜20の外周上面より内側に一段落ちた部分には、内釜40を保持するためのレース面が形成されている。

【0023】外釜20の中心部には、下方に向かって金属製の回転軸22が形成されている。外釜20がミシンに取り付けられると、回転軸22は、縫い針の上下運動と同様に垂直に位置するように構成されている。更に、ミシンの駆動時には、回転軸22が前記駆動軸に連動して垂直軸を中心に回転し、外釜20が前記レース面に保持された内釜40の回りを水平に回転するように構成されている。

【0024】また、延長管24、外釜20の中心にある回転軸22と、延長管24とを繋げるベアリング26、フィルター30を備えた集塵部28、及び、メインモータ34の回転に連動して回転するファン32の空気吸い込み口32a、またはメインモータ34の空気吸い込み口34aとフィルター30とを繋ぐ筒部36を備えている。

【0025】金属製の回転軸22は中空形状となっている。回転軸は中空形状のギヤであっても良い。

【0026】回転軸22の下方先端部には、内周が回転するベアリング26が、回転軸22の外周に圧入され、ベアリング26の外周には、延長管24が繋がれており、延長管24は集塵部28に繋がっている。

【0027】集塵部28は、外釜20の内部及び外釜20の周辺の布埃や糸屑が集められるところである。集塵部28の外壁の一部は、フィルター30の機構を備えている。

【0028】前記メインモータ34の主軸35上に、中心軸をもつファン32がある。集塵部28の中の空気が、集塵部28のフィルター30を介して、ファン32の回転により生じる吸い込み力によって吸い込まれる様、筒部36の一方の端面にはフィルター30が設けられ、他方の端面にはファン32が設けられている。

【0029】また、集塵部28のフィルター30を除く外壁の一部は、ミシン本体の外側に位置し、容易に開閉が可能な蓋38となっている。蓋38は、埃42の溜まり具合が確認できる様に、透明な樹脂素材であっても良い。

【0030】本実施例のミシンは、メインモータ34の主軸35が回転すると、外釜20が回転軸22を中心に回転し、同時に、ファン32も回転する。ファン32が回転することによって生じる吸込み気流が、筒部36、フィルター30、集塵部28、延長管24、中空の回転軸22の中を通過して内釜40を吸引する。この吸引力が、内釜40の遊動を防止する。そして、これらのメインモータ34及びファン32等が吸引手段に相当し、また、回転軸22、延長管24、筒部36等が放出管を構成している。

【0031】同時に、ファン32が回転することによって生じる吸込み気流は、外釜20内部の、縫い針が布を貫通する際生じる布埃や、送り歯が布を摩擦する際に生じる布埃、また、縫製途中に糸が絡んで、糸を切ったときに生ずる糸屑を吸引し、フィルター30によって集塵部28内に埃42が集められる。

【0032】また、外釜20の外周部の一部は縫製上切り欠けており、縫製時には回転している為、その切り欠けている部分を通して、外釜外部周辺の埃42の吸引も可能な機構となっている。

【0033】吸い込み気流とフィルター30によって集塵部28内に集められた埃42は、蓋38から容易に捨てることができる。

【0034】よって、本実施例の水平全回転釜の場合、針板のネジを外し、内釜を取り除いて外釜内部、及び外釜付近の掃除が不要となり、よって、外釜または内釜が樹脂製の場合には、掃除前後、外釜のレース面に内釜のレース面を乗せる際、外釜の外部と干渉した場合や、掃除後、誤った位置に内釜を乗せて組み付けようとした場合に、内釜のレース面を損傷させる恐れもなくなり、また、針板を外した後、取付の際に、送り歯との微妙な位置合わせを行う煩わしさも無くなることで、使用者のメンテナンスが大幅に削減でき、使いやすいマシンを提供できるといった効果を奏する。

【0035】尚、本実施例においては、専用のファン32を設けているが、メインモータ34の内部に設置されているモータ冷却用のファン62を利用してもよい。そして、この場合は、延長管54をメインモータ34の近傍まで延ばし、その延長管54とメインモータ34との間に筒部66(集塵部58)を設け、また、フィルター60、埃の取り出しの為の蓋68を設ける。

【0036】以上の実施例については、水平全回転釜タイプのマシンについて示したが、請求項3記載のマシンにおいては、半回転釜タイプのマシンにおいても、適応される。

【0037】その場合の一例を簡単に述べると、中釜を半回転させるドライバーの軸は中空形状とし、大釜内部が吸引できるような機構とし、従来のマシンに加えて、延長管、外釜の中心軸または外釜の中心にあるギヤと延長管とを繋げるジョイント部、フィルターを備えた集塵部、及び、モータの回転に連動して回転するファンの空気吸い込み口、またはモータの空気吸い込み口とフィルターとを繋ぐ筒部を備えていれば、前記実施例と同様の作用を行う。

【0038】よって、垂直半回転釜についても、埃が溜まると釜の回転がスムーズに行かなくなって目飛び等の縫製不良を起こすといった恐れがなくなり、補助テーブルを取り除いて、釜カバーを開き、内リングとナカ釜を取り除いて、大釜内部、及び大釜付近の掃除を行う煩わしさが無くなることで、使用者のメンテナンスが削減でき、使いやすいマシンを提供できるといった効果を奏する。

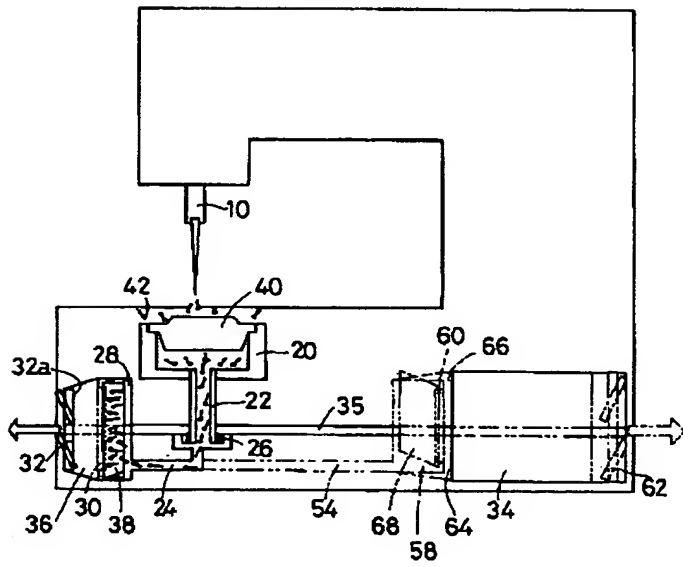
【0039】

【発明の効果】以上、説明したように本発明のマシンによれば、吸引手段が内釜を外釜に向かって吸引するため、縫製時に内釜が外釜のレース面上を遊動することを防止し得、よって、外釜、内釜の作製工程が簡素化され、容易に安価に作製でき且つ、目飛び等の縫製不良を起こすことが無く、美しい縫い目の作品を得ることができるといった効果を奏する。

【0040】また、ファンの回転によって生じる吸込み気流は、釜内部の、縫製時に生じる布埃や糸屑を吸引するため、釜付近の掃除が不要となり、目飛び等の縫製不良を起こすことが無く、美しい縫い目の作品を得ることができるといった優れた効果を奏する。

## 図面

【図1】



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CLAIMS

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[Claim(s)]

[Claim 1] The sewing machine characterized by having a suction means to attract said inner kettle toward said outside iron pot, in the sewing machine equipped with all the horizontal rotary pans that have an inner kettle and an outside iron pot turning around the surroundings of the inner kettle.

[Claim 2] The sewing machine according to claim 1 characterized by constituting the driving source of said suction means by the Maine motor for driving said outside iron pot or a needle bar.

[Claim 3] The sewing machine characterized by to have the fan by whom is prepared in the sewing machine equipped with the Maine motor for driving an iron pot or a needle bar so that it may connect from said iron pot to the exterior of a sewing-machine body, and is prepared in the middle of emission tubing and emission tubing for emitting the dust generated near the iron pot to the exterior of a sewing-machine body, and a rotation drive is done by said Maine motor.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to a sewing machine.

[0002]

[Description of the Prior Art] In the case of all the horizontal rotary pans that rotate conventionally the vertical axes which are the vertical motion directions of a needle bar as a core Since it was not able to prevent that it was too light only under the weight of the inner kettle itself, and an inner kettle moved idly the ball-race side top of an outside iron pot when an inner kettle slid on the ball-race side top of an outside iron pot, using the magnet, the magnetic circuit was formed between the inner kettle base and the outside kettle bottom side, and induction of an inner kettle had been prevented by magnetism. Therefore, on the occasion of an outside iron pot and inner kettle production, the magnet was indispensable, and when a magnet was laid under the base of an inner kettle, the outside kettle bottom side consisted of the metallic material attracted by the magnet, or was covered with said metallic material. Moreover, when a magnet was laid under the base of an outside iron pot, the inner kettle base consisted of the metallic material attracted by the magnet, or the inner kettle base was covered with said metallic material.

[0003] Moreover, when it was the sewing machine by which it is especially equipped with the perpendicular half rotary pan the interior and near an iron pot the outside iron pot again when a sewing machine performs sewing and it is the sewing machine by which it is equipped with all level rotary pans, \*\*\*\* collected the interior and near an iron pot Ogama, and the operator was cleaning up by removing an inner kettle or an inside iron pot.

[0004]

[Problem(s) to be Solved by the Invention] Since that whose body is a product made of resin shows most in the case of all horizontal rotary pans, an inner kettle however, the configuration After being the injection-molded product with which the metallic material was inserted to the bottom surface part or carrying out injection molding of the inner kettle body, The thing which was making the magnet lay under the inner kettle base using means, such as adhesion, was common, and in order to form said magnetic circuit, it was not able to remove like the underground work of the metallic material attracted by the magnet, and magnetic underground work.

[0005] When the quality of the material of the body of an outside iron pot was a metallic material and it equipped with the former inner kettle about an outside iron pot, the process which makes a magnet lay under the base of an outside iron pot was not able to be removed.

[0006] Moreover, about an outside iron pot, as indicated by the specification of Japanese Patent Application No. No. 178876 [ five to ] and drawing concerning application of these people When resin shaping of the part excluding the point-of-a-sword section and a medial axis from a viewpoint of prevention of the noise at the time of sliding and reduction of a manufacturing cost is carried out Only between metal medial axes, even if it equipped the iron pot with the thing which made the magnet lay under the base of an inner kettle the outside made of resin, since it was inadequate in \*\*\*\*, magnetism had to lay underground the metallic material plate attracted by the outside iron pot with a magnet, and had led to the cost rise.

[0007] Moreover, when a sewing needle penetrated cloth and formed a seam about the point of \*\*\*\*, there was much dust produced from cloth beyond anticipation and the path was covered with dust as



the ball-race side where dust serves as a sliding surface of an inner kettle and an outside iron pot, and yarn, there was a case where rotation of an iron pot stopped going smoothly, and poor sewing, such as an eye jump, was started.

[0008] therefore, in the case of all level rotary pans, must remove the screw of a throat plate, must remove an inner kettle, must carry out cleaning of the interior of an outside iron pot, and near an outside iron pot, and when an outside iron pot or an inner kettle is a product made of resin Before and after cleaning, when interfered with the exterior of an outside iron pot, or when putting the ball-race side of an inner kettle on the ball-race side of an outside iron pot, and it was going to put and attach an inner kettle to the mistaken location after cleaning, there was a possibility that a ball-race side might receive damage.

[0009] Moreover, after removing a throat plate, delicate alignment with a feed dog had to be performed on the \*\*\*\*\* occasion, and it was troublesome.

[0010] Since there was a case where rotation of an iron pot stopped going smoothly, and poor sewing, such as an eye jump, was started when dust collected even if the perpendicular half rotary pan stuck, generally, the auxiliary table had to be removed, iron pot covering had to be opened, the inner ring and the inside iron pot had to be removed, cleaning of the interior of Ogama and near Ogama had to be performed, and it was troublesome.

[0011] This invention is made in order to solve the trouble mentioned above, and it is set to the sewing machine of all horizontal rotary pans. the time of production of an inner kettle and an outside iron pot -- the magnet which was indispensable for ranging behavior prevention of an inner kettle -- and It aims at offering the sewing machine which more nearly magnetic underground work cannot carry out like the underground work of the metallic material plate attracted by the magnet, and \*\* cannot start poor sewing, such as an eye jump, for it, either, and can obtain the work of a beautiful seam.

[0012] Moreover, it aims at offering the sewing machine which a troublesome maintenance called cleaning of the interior of an outside iron pot and a shuttle can reduce sharply, and does not start poor sewing, such as an eye jump, and which a user tends to use in the sewing machine which has an iron pot device.

[0013]

[Means for Solving the Problem] The sewing machine which has all the horizontal rotary pans of this invention according to claim 1 in order to attain this purpose is equipped with a suction means to attract an inner kettle toward an outside iron pot.

[0014] Moreover, the sewing machine according to claim 2 is constituted by the Maine motor for the driving source of a suction means to drive an outside iron pot or a needle bar.

[0015] Furthermore, the sewing machine according to claim 3 was formed so that it might connect from an iron pot to the exterior of a sewing-machine body, it was formed in the middle of emission tubing and emission tubing for emitting the dust generated near the iron pot to the exterior of a sewing-machine body, and is equipped with the fan by whom a rotation drive is done by the Maine motor.

[0016]

[Function] In the sewing machine which has all the horizontal rotary pans concerning claim 1 of this invention constituted as mentioned above, a suction means attracts an inner kettle toward an outside iron pot.

[0017] Moreover, in the sewing machine concerning claim 2, a suction means drives by the Maine motor.

[0018] Furthermore, in the sewing machine concerning claim 3, in order to emit the dust which emission tubing generates near the iron pot to the exterior of a sewing-machine body, it is prepared so that it may connect from an iron pot to the exterior of a sewing-machine body, as a fan is emission tubing, it is prepared, and a rotation drive is carried out by the Maine motor.

[0019]

[Example] Hereafter, one example which materialized this invention is explained with reference to a drawing.

[0020] the bench level to the body machine frame of a sewing machine is prepared, and a flat throat plate is well-known in the top face of the bench -- as -- it is located. The arm is setting up from the

right end section of the bench. Inside the arm, pivotable, the driving shaft which connects with the Maine motor and is driven is held so that it may be well-known. At the left end of the arm section, in the part which meets the bench, the needle bar 10 which moves up and down in the first half synchronizing with rotation of a driving shaft is formed, and the sewing needle holding the needle thread which constitutes a seam is attached in this needle bar 10 at it so that it may be well-known. [0021] The pinholing is prepared in the abbreviation center section of the throat plate, and it is constituted so that a needle bar 10 may follow up and down, it may sew and a needle can pass a throat plate. In the case of all horizontal rotary pans, the iron pot device which collaborates with the sewing needle which moves up and down under the throat plate, and forms a seam in a processing cloth is established.

[0022] An iron pot device is constituted by the inner kettle 40 which contains the bobbin around which the bobbin thread was wound, and the outside iron pot 20 which holds an inner kettle 40 free [ sliding ], and the ball-race side for holding an inner kettle 40 is formed in the part which fell one step inside the periphery top face of the outside [ this ] iron pot 20.

[0023] It goes to the core of the outside iron pot 20 caudad, and the metal revolving shaft 22 is formed in it. If the outside iron pot 20 is attached in a sewing machine, the revolving shaft 22 is constituted so that it may be perpendicularly located like vertical motion of a sewing needle. Furthermore, at the time of the drive of a sewing machine, it is constituted so that a revolving shaft 22 may be interlocked with said driving shaft, and may rotate centering on vertical axes and the outside iron pot 20 may rotate horizontally the surroundings of the inner kettle 40 held in said ball-race side.

[0024] Moreover, it has the cylinder part 36 which connects air absorption opening 32a of the bearing 26 which connects the revolving shaft 22 which exists at the core of prolongator 24 and the outside iron pot 20, and prolongator 24, the dust collection section 28 equipped with the filter 30, and the fan 32 who is interlocked with rotation of the Maine motor 34 and rotates or air absorption opening 34a of the Maine motor 34, and a filter 30.

[0025] The metal revolving shaft 22 serves as a hollow configuration. A revolving shaft may be the gear of a hollow configuration.

[0026] The bearing 26 which inner circumference rotates in the lower part point of a revolving shaft 22 is pressed fit in the periphery of a revolving shaft 22, prolongator 24 is tied to the periphery of bearing 26, and prolongator 24 is connected with the dust collection section 28.

[0027] As for the dust collection section 28, surrounding \*\*\*\* and the waste thread of the interior of the outside iron pot 20 and the outside iron pot 20 are just going to be collected. Some outer walls of the dust collection section 28 are equipped with the device of a filter 30.

[0028] There is a fan 32 who has a medial axis on the main shaft 35 of said Maine motor 34. A filter 30 is formed in one end face of the appearance absorbed by the absorption force which the air in the dust collection section 28 produces by rotation of a fan 32 through the filter 30 of the dust collection section 28, and a cylinder part 36, and the fan 32 is formed in the other-end side.

[0029] Moreover, some outer walls except the filter 30 of the dust collection section 28 are located in the outside of the body of a sewing machine, and it serves as the lid 38 which can be opened and closed easily. A lid 38 may be a transparent resin material so that dust 42 may collect and condition can be checked.

[0030] If the main shaft 35 of the Maine motor 34 rotates, the outside iron pot 20 will rotate centering on a revolving shaft 22, and a fan 32 will also rotate the sewing machine of this example to coincidence. The absorption air current produced when a fan 32 rotates attracts [ be / it / under / of a cylinder part 36, a filter 30, the dust collection section 28, prolongator 24, and the revolving shaft 22 in the air / passing ] an inner kettle 40. This suction force prevents the ranging behavior of an inner kettle 40. And these Maine motors 34 and fan 32 grade are equivalent to a suction means, and a revolving shaft 22, prolongator 24, and cylinder part 36 grade constitute emission tubing.

[0031] The absorption air current produced when a fan 32 rotates to coincidence attracts the waste thread produced when yarn is involved in the middle of \*\*\*\* produced in case the sewing needle of the outside iron pot 20 interior penetrates cloth, \*\*\*\* produced in case a feed dog rubs cloth, and sewing and yarn is turned off, and dust 42 is collected in the dust collection section 28 with a filter 30.

[0032] Moreover, since a part of periphery section of the outside iron pot 20 is cut on sewing, it is missing and is rotating at the time of sewing, it cuts, and it lets the missing part pass, and serves as a device which the dust 42 around outside iron pot external can also attract.

[0033] The dust 42 collected in the dust collection section 28 with the suction air current and the filter 30 can be easily thrown away from a lid 38.

[0034] therefore, in the case of all the level rotary pans of this example, remove the screw of a throat plate, remove an inner kettle, and cleaning of the interior of an outside iron pot and near an outside iron pot becomes unnecessary, and when an outside iron pot or an inner kettle is a product made of resin The case where it interferes with the exterior of an outside iron pot when putting the ball-race side of an inner kettle on the ball-race side of an outside iron pot before and after cleaning, When it is going to put and attach an inner kettle to the mistaken location after cleaning, after a possibility of damaging the ball-race side of an inner kettle also disappearing and removing a throat plate, by the thing which perform delicate alignment with a feed dog in the \*\*\*\*\* case and which it troubles and is lost as if A user's maintenance can reduce sharply and does so the effectiveness that the sewing machine which is easy to use can be offered.

[0035] In addition, in this example, although the fan 32 of dedication is formed, the fan 62 for motor cooling currently installed in the interior of the Maine motor 34 may be used. And in this case, prolongator 54 is extended to near the Maine motor 34, and a cylinder part 66 (dust collection section 58) is formed between that prolongator 54 and Maine motor 34, and the lid 68 for the ejection of a filter 60 and dust is formed.

[0036] Although the rotary pan type [ all horizontal ] sewing machine was shown about the above example, in a sewing machine according to claim 3, it is adapted also in a half-rotary pan type sewing machine.

[0037] If an example in that case is described briefly, the shaft of the driver made to half-rotate an inside iron pot will be made into a hollow configuration. It considers as the device in which the interior of Ogama can be attracted. To the conventional sewing machine In addition, prolongator, The joint section which connects the gear which exists at the medial axis of an outside iron pot, or the core of an outside iron pot, and prolongator, If it has the cylinder part which connects air absorption opening of the dust collection section equipped with the filter, and the fan who is interlocked with rotation of a motor and rotates or air absorption opening of a motor, and a filter, the same operation as said example will be performed.

[0038] Therefore, also about a perpendicular half rotary pan, if dust collects, rotation of an iron pot will stop going smoothly, and a possibility of starting poor sewing, such as an eye jump, will disappear. An auxiliary table is removed, iron pot covering is opened, an inner ring and a NAKA iron pot are removed, a user's maintenances can be reduced by the troublesomeness which performs cleaning of the interior of Ogama and near Ogama being lost, and the effectiveness that the sewing machine which is easy to use can be offered is done so.

[0039]

[Effect of the Invention] As mentioned above, as explained, in order that a suction means may attract an inner kettle toward an outside iron pot according to the sewing machine of this invention, it can prevent that an inner kettle moves idly the ball-race side top of an outside iron pot at the time of sewing, and therefore the making process of an outside iron pot and an inner kettle is simplified, and it can produce cheaply easily, and poor sewing, such as an eye jump, is not started, and the effectiveness that the work of a beautiful seam can be obtained is done so.

[0040] Moreover, in order that the absorption air current produced by rotation of a fan may attract \*\*\*\* and waste thread which are produced at the time of sewing inside an iron pot, cleaning of near an iron pot becomes unnecessary, and it does not start poor sewing, such as an eye jump, and does so the outstanding effectiveness that the work of a beautiful seam can be obtained.

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[Translation done.]

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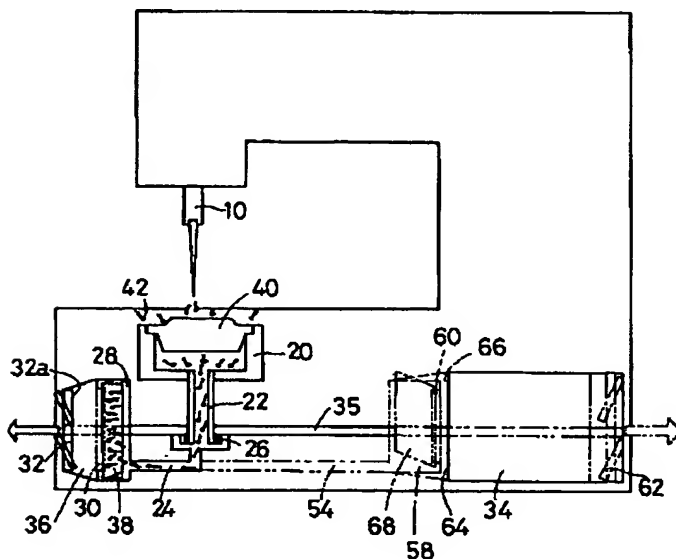
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DRAWINGS

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[Drawing 1]



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[Translation done.]

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